DEVICES AND METHODS FOR MONITORING RESPECTIVE OPERATING TEMPERATURES OF COMPONENTS IN A MICROLITHOGRAPHY APPARATUS

Abstract of the Disclosure

Devices and methods are disclosed for monitoring temperature of certain components (e.g., lenses, deflectors, and stages) in real time during operation of a microlithography apparatus, especially a charged-particle-beam microlithography apparatus. The components have associated therewith respective temperature sensors that provide temperature data to a temperature-monitoring device. The temperature-monitoring device interprets the data and routes corresponding signals to a controller that commands certain responsive action by any of various components of the apparatus serving to control the temperatures within respective specified tolerances. If a sudden temperature change occurs in a monitored component of the apparatus, then a warning device activates an alarm, and the controller commands corrective actions to return the culprit temperature to within the specified gradient. Depending upon the magnitude of the detected temperature deviation, the controller can initiate a calibration routine of the microlithography apparatus.